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Docket No.: 20239/0202616-US0  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Kenjiro HIGAKI et al.

Application No.: 10/539,926

Confirmation No.: 8405

Filed: June 14, 2005

Art Unit: 2811

For: SEMICONDUCTOR DEVICE

Examiner: Sara W. Crane

**RESPONSE TO RESTRICTION REQUIREMENT**

MS Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

**INTRODUCTORY COMMENTS**

As a result of the Office Action mailed January 3, 2007 with regard to the above-referenced patent application, Applicants are required to elect one of the following claim groups identified by the Examiner for further prosecution:

- Group I: Claims 1, 4 - 7 and 19 - 22, drawn to a semiconductor device mounted on a substrate, having specific dimensions; and classified in U.S. Search Class 257, Subclass 618;
- Group II: Claims 8 - 18, drawn to a device mounted on a substrate having a cavity, and classified in U.S. Search Class 257, Subclass 730; and
- Group III: Claims 23-25, drawn to a semiconductor device mounted on a substrate, where the substrate has specific dimensions; classified in U.S. Search Class 257, Subclass 678

Applicants hereby provisionally elect Group I, which includes claims 1, 4 - 7 and 19 - 22. Applicants further reserve all rights to continue prosecution of one or more of the non-elected claims in a divisional application at a future time.

This provisional election of the claim of Group I is made with traverse.

The Examiner restricts the prosecution to one of the three identified claim Groups by suggesting that the identified Groups are related as combinations/subcombinations. Specifically, the Examiner suggests that the invention of claim Group I is a subcombination related to combinations expressed by the claims of Groups II and III. Applicants respectfully disagree with this characterization.

MPEP § 806.05(a) defines combinations/subcombinations as follows:

A combination is an organization of which a subcombination or element is a part.

MPEP § 806.05(c) elaborates to state:

[Inventions defining a combination and a subcombination] are distinct [and subject to restriction] if it can be shown that [the] combination as claimed:

(A) does not require the particulars of the subcombination as claimed for patentability (to show novelty and unobviousness), and

(B) the subcombination can be shown to have utility either by itself or in another materially different combination.

When these factors cannot be shown, such inventions are not distinct.

Each of the independent claims (1, 8, 19 and 23) present in the three claim groups includes two fundamental elements: a) a semiconductor element with an area for a main surface of 1 mm<sup>2</sup> or greater; and b) a substrate having a thermal conductivity of 170 W/m-K or greater and having an upper surface and a bottom surface which is positioned on the opposite side of the upper surface. In addition, each independent claim specifies a common relationship between a major length (L) along a main surface of the semiconductor element and a distance (H) between a semiconductor mounting part and the bottom of the substrate. Each of the independent claims specifies that the ratio between H and L is greater than or equal to 0.3. Independent claims 1, 8, 19 and 23 rely at least in part on these elements and this relationship to establish patentability.

In comparison to Group I (i.e., independent claim 1), Group II (i.e., independent claim 8) further specifies that the upper surface of the substrate includes a cavity in which the semiconductor element is mounted, and Group III (i.e., independent claim 23) specifies an additional relationship between the distance (H) and a length (Y) along a bottom surface of the substrate. Arguably, and with reference to MPEP § 806.05(c), claims 8 and 23 do not add additional elements to a claim 1

subcombination, but rather more specifically claim elements that are already broadly claimed in claim 1. In other words, each independent claim effectively recites a combination comprising the same elements.

Accordingly, as the identified claim groups fail to fall within the conditions defined by MPEP §§ 806.05(a), (c) for distinguishing and restricting combinations/subcombinations, Applicants respectfully request that the restriction requirement be withdrawn. In accordance with MPEP § 806.05(c), and in the event that this withdrawal request is denied, Applicants reserve all right to further amend the claims to define one or more linking claims which, if found allowable, will provoke rejoinder of one or more of the unelected claims.

In view of the above remarks, Applicants believe the pending application is in condition for allowance. If there are any other issues remaining which the Examiner believes could be resolved through a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Dated: January 23, 2007

Respectfully submitted,

By   
Thomas J. Bean

Registration No.: 44,528  
DARBY & DARBY P.C.  
P.O. Box 5257  
New York, New York 10150-5257  
(212) 527-7700  
(212) 527-7701 (Fax)  
Attorneys/Agents For Applicant